



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,767	06/21/2001	Whonchee Lee	10829851US2	9072

25096 7590 09/30/2003

PERKINS COIE LLP
PATENT-SEA
P.O. BOX 1247
SEATTLE, WA 98111-1247

EXAMINER

GRANT, ALVIN J

ART UNIT	PAPER NUMBER
----------	--------------

3723

DATE MAILED: 09/30/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/887,767

Applicant(s)

LEE ET AL.

Examiner

Alvin J Grant

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 and 37-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 and 37-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12 & 13.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Weihs et al. '467.

Weihs et al. discloses a method of processing a microelectronic substrate, comprising: disposing an electrolytic fluid adjacent to a conductive material of the microelectronic substrate; the conductive material having a first surface in a first plane and a recess in the first surface, the recess being bounded by a second surface in a second plane, the conductive material further having a corner between the first and second surfaces (see Figs. 5(a) and 5(b); removing at least a part of the conductive material from the corner by positioning a first and second electrodes in fluid communication with the electrolytic fluid and coupling at least one of the electrodes to a source of electrical potential; and varying the current flow to control the rate of oxidation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-13, 16-18, 27-30 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weihs et al. '467.

Weihs does not specifically the parameters of the parameters of the current used, however it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used

current and voltages in the amounts disclosed by applicant since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Claims 2-18, 20-35, and 37-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weihs et al. in view of IBM Technical Disclosure Bulletin, Vol. 20, 1977, No. 2, pages 810 and 811.

Weihs et al. is described above. **Referring to claims 2-5, 15, 20-23, 35, 41-45 and 51**, Weihs et al. does not specifically disclose a method of rounding off square shaped corners. IBM Technical Disclosure Bulletin, Vol. 20, 1977, No. 2, pages 810 and 811 (IBM 1) discloses a method of rounding off square corners so as to minimize the stress created in the rounding process. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have rounded the corners of the Weihs et al apparatus electrolytically as taught by IBM Bulletin so as to minimize the stress on the corners.

Referring to claim 6, 24-26, 38, 39, 46 and 47 are Weihs et al. as modified does not disclose disposing oxide on the conductive material and nitride layers on the oxide layer. IBM 1 discloses a method of disposing oxide on the conductive material and nitride layers on the oxide layer so as to control the amount of the corner to be rounded. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have deposited oxide on the conductive material and nitride layers on the oxide layer of Weihs et al. as taught by IBM 1, so as to control the amount of the corner to be rounded.

Referring to claims 7-9, 14, 31-34, 37, 48, 49 and 50, Weihs et al. as modified does not disclose the use of hydrochloric or hydrofluoric acid, doped silicon or a current rate ranging from about one to 500 milliamps/square cm. IBM 1 discloses the use of hydrofluoric acid, p-doped silicon and a current of 60-80 milliamps/square cm. as a means of controlling the rounding of the corners. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used hydrofluoric acid, p-doped silicon and a current of 60-80 milliamps/square cm. on the apparatus of Weihs et al. as taught by IBM 1 as a means of controlling the rounding of the corners.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alvin J Grant whose telephone number is (703) 305-3315. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J Hail can be reached on (703) 308-2687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1184.

ajg


Joseph J. Hail, III
Supervisory Patent Examiner
Technology Center 3700